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1 **Changes in student physical health behaviour – an opportunity to turn the concept of a Healthy University**
2 **into a reality**

3 **ABSTRACT**

4 **Aims:** Previous studies have reported a high prevalence of unhealthy behaviours in the student population, which the
5 Healthy University concept is now seeking to address, by taking a settings approach to health promotion. This study
6 investigated how far students are already seeking to make changes to improve their health behaviour while in a
7 university setting, to help inform the development of Healthy Universities.

8 **Methods:** Data on student health behaviour change, health indicators and demographics was gathered from 550
9 students attending two London universities, via an online questionnaire released through the student union email
10 system at one university and through iPads at a student centre at the other.

11 **Results:** 84% of respondents reported making changes to try to become healthier while at university, primarily for
12 proactive health reasons rather than reacting to a perceived health or weight issue. Universities and student unions
13 were reported as influencing behaviour change by only 5 students. Compared with previous studies, a higher
14 proportion of respondents were pursuing healthier lifestyles, including only 11% reporting they smoked. There were
15 some statistically significant demographic differences as regards alcohol consumption, physical activity, the types of
16 food students were seeking to avoid and the reasons for this.

17 **Conclusions:** The findings provide a novel perspective on student health behaviour and suggest that the traditional
18 stereotype of a hedonistic student lifestyle freed from family constraints may need to be reassessed. Universities and
19 student unions appear to have a significant opportunity to build on a more health conscious cohort of students,
20 employing targeted approaches where appropriate, to encourage positive health behaviour change and make the
21 Healthy Universities concept a reality, with important public health implications.

22 (273 words)

23 **Key words:** Health behaviour change, Student health, Healthy Universities, public health, Generation Z.

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1 INTRODUCTION

2 Nearly half (48.7%) of young people in the United Kingdom (UK) were accepted onto university courses in 2017 at age
3 18, 19 or 20¹, a significant proportion. University students have traditionally been assumed to have **physically**
4 unhealthy lifestyles.²⁻⁸ Entering 'emerging adulthood'⁹ away from home and family constraints for the first time may
5 lead to greater peer influence. Further, this age cohort has been described as biologically predisposed to risk-taking
6 behaviour by disproportionately discounting future rewards likely to result from less risky choices.¹⁰ In addition, the
7 university microenvironment has traditionally focused on education rather than health and student culture has
8 sometimes presented unhealthy options as normal, such as Freshers Week pub crawls – although this is now being
9 discouraged.¹¹ Numerous studies on UK university students report unhealthy student behaviour, including unhealthy
10 diet,^{2-5, 8} excessive alcohol consumption,^{2,3,5, 7-8} insufficient physical activity,^{2,5,8} and risky sexual behaviour.³ The
11 current study approached the issue of the **physical** health behaviour of students from a fresh perspective. Previous
12 research has not considered whether some students consciously seek to make changes to adopt healthier lifestyles.
13 Addressing this gap, this study identified student motivation for and success with health behaviour change. This may
14 provide new insights for public health; identifying how students can overcome the traditional obstacles to a physically
15 healthy lifestyle. While students may see lifestyle choices at university as transient, risky health behaviour at university
16 often continues into adult life⁵ and thus has longer term public health implications.

17
18 There are many theories that can inform our understanding of student health behaviour change. However most of
19 these theories focus on individual capabilities and motivation, with limited reference to context and social factors¹²,
20 and concentrate on initiating rather than maintaining behaviour change.¹³ Both issues are potentially addressed by the
21 settings approach applied to higher education in the Okanagan Charter for Health Promoting Universities and
22 Colleges^{14,15}. The settings approach takes a more holistic view of health behaviour change, seeing this as being
23 achievable through the development of everyday environments which support and sustain healthy behaviour.
24 Community-centred approaches may be a useful complement. Public Health England advise there is extensive
25 evidence that connected and empowered communities are healthy communities¹⁶, while the National Institute for
26 Health and Care Excellence (NICE) recommends investing in interventions and programmes that identify and build on
27 the strengths of individuals and communities and the relationships within communities.¹⁷ This is in line with the
28 'supersetting' approach,¹⁸ which recognises the importance of active involvement and participation to stimulate
29 motivation and a feeling of ownership of the change process. This approach argues for a high degree of participation
30 of target groups in developing, implementing, monitoring and evaluating health promotion initiatives. In this context
31 university students can be seen as partners in the university community, a resource to work with if Health Promoting
32 Universities are to be achieved. The current study therefore sought to explore this potential by researching whether

there was already positive health behaviour change among university students and if so, the nature and extent of the change, its success, the reasons for the change reported by the students themselves and any apparent reasons that might emerge from initial analysis. These findings can help inform the planning and development of Healthy Universities, contributing to the development of a holistic approach.

METHOD

This study aimed to contribute to the development of Healthy Universities by examining the health behaviours of students at two London universities (King's College London and Goldsmiths University London), with a focus on attempted changes to improve their health, the nature of the changes and the reported reasons. Ethical approval was sought and granted for both sites by King's College London's ethics committee.

Data collection instrument

In the absence of a validated questionnaire that addressed all the study objectives while being sufficiently concise to encourage student completion, a 23-item online questionnaire was developed. **Questions were developed from preliminary data collected through a qualitative survey (N = 236) of adult health behaviour change. Thematic analysis, based on grounded theory, identified commonly used health change behaviours among young adults and the reported reasons for the changes.** The questions focused on student health behaviour in relation to diet, physical activity, smoking and alcohol (as four recognised health behaviour indicators);¹⁹ attempted changes in health behaviour, the motivations for change and self-reported success and anything students believed the university or student union(SU) could do to support their health and well-being. Demographic information about the participants was collected, **including age, gender, ethnicity, term time residence and general self-reported health. Participants were also asked for their height and weight to enable calculation of their Body Mass Index (BMI).** For the full survey see Appendix A.

Twenty-one of the questions were closed (including one five-point Likert scale question). Two open ended questions captured a wider range of data where students were asked to indicate what they considered had helped them make health behaviour change, and for suggestions as to what their university or SU could do to help support health and well-being.

Sample and sampling

The study sample was undergraduate and postgraduate students at King's College London (**KCL**) and Goldsmiths University of London (**GUL**). **The questionnaire was made available online to students during April and May**

1 2017 (through the student union email system at KCL and through iPads at a student centre at GUL) with
 2 information about the purpose of the study and an invitation to participate with informed consent, confidentiality and
 3 anonymity, in line with ethical requirements. No names were recorded in the survey instrument and access to the
 4 data was password protected. 550 students responded out of a population of 39,910, providing a 4.15%
 5 margin of error at a confidence level of 95%.

7 **Data Analysis**

8 Descriptive statistics were used for demographic comparisons and the Fisher Exact Test was used to assess the
 9 significance of the findings when comparing the incidence between groups, with the level of statistical significance
 10 recorded and reported at <.05, corrected for multiple comparisons. The two open-ended questions were coded
 11 inductively and analysed using a grounded approach to thematic analysis.

13 **RESULTS**

14 550 students answered the initial question, which asked if they had made positive health behaviour changes since
 15 starting university. Of these 508 (92.4%) answered the remaining survey questions. Demographic data is available in
 16 Table 1.

18 **TABLE 1: The Student Respondents – demographic distribution (n=508)**

		Number	Percentage
Gender	Female	373	73.4
	Male	111	21.9
	Other/not indicated	24	4.7
Age (years)	18-21	247	48.6
	22-25	176	34.6
	>25	85	16.7
Ethnicity	White	273	53.7
	Asian	144	28.3
	Black	22	4.3
	Mixed	42	8.3
	Other/not indicated	27	5.4
Residence	Private accommodation	261	51.4
	Halls of Residence	110	21.7
	Home	104	20.5
	Other	33	6.5

20 **Health behaviour changes**

21 Students were asked whether, since starting university, they had changed something they normally did to try to
 22 become healthier (such as stopping, doing less/more, or starting something). 84% (n=462) reported that they had. The
 23 subsequent questions (covering the nature of the change, the reported motivations for the change, the degree of
 24 success, healthy lifestyle indicators and demographics) were typically answered by 432 to 436 respondents per

question. Of these respondents, 39.7% (n=172) reported being largely or completely successful at making a change, 38.1% (n=165) reported partial success and 22.2% (n=96) reported little or no success. The most commonly reported health changes attempted were to eat healthier food (n=350), to exercise more (n=339) and to lose weight (n=171). Less commonly reported were to cut down on alcohol consumption (n=67) and to stop smoking (n=37), perhaps unsurprisingly as only 16.7% of students who had made a behaviour change reported having more than five alcoholic drinks in the week prior to the study and only 10.2% reported that they smoked. 296 students reported seeking to avoid fizzy/sugary drinks, 257 reported seeking to avoid takeaways and fast food and 209 sugary food. Smaller numbers sought to avoid red meat/processed meat/animal fat; dairy products and gluten/wheat. The main reason for these food choices (n=339) is that they were not good for their health. However, non-health reasons also applied. 112 reported not liking the taste, 104 referred to concerns about animal welfare and 100 to cost. The main reasons for trying to change, from the 435 students responding to this question, were: to be healthier, fitter or feel better (n=397), because they knew it was good for them (n=321), to lose weight (n=187), to live longer/enjoy long term health benefits (n=180) and because they were feeling tired, unwell or lethargic (n=163) (Table 2a).

TABLE 2a: Student Health Behaviour Change

What students tried to change	n = 438	Number	Percentage
Eat healthier food		350	79.9
Exercise more		339	77.4
Lose weight		171	39.0
Cut down on alcohol		74	16.9
Stop smoking		39	8.9
Why they tried to change	n = 435	Number	Percentage
Be healthier, fitter or feel better		397	91.3
Know it is good for me		321	73.8
Lose weight		187	43.0
Live longer/long term health benefits		180	41.4
Feeling tired, unwell, lethargic		163	37.5
Take part in sport/ gym		88	20.2
Encouraged to do		62	14.3
Health problem for me or a close family member		53	12.2
Prepare for an event		23	5.3
Medical check/ advice		17	3.9
Having children		5	1.1
Information/support provided by university/SU		5	1.1
Reasons stated for making no behaviour change	n = 73	Number	Percentage
Too busy/not enough time		37	50.7
Laziness		25	34.2
Already lead a healthy lifestyle		23	31.5
Lack of will power		20	27.4
Other		25	34.2

1 Insert **Figure** 2b continued here (located after the references)

2

3 **The context for behaviour change - healthy lifestyle indicators**

4 Of the 508 students completing the full survey, 89% reported that they did not smoke. Most (84.4%) also reported they
5 had consumed either no alcohol or a limited amount (1–5 drinks) in the previous seven days (n=222 and 207
6 respectively). Three quarters considered their weight to be about right. Nearly half reported spending at least three
7 hours on different types of physical activity over the previous seven days. 39.4% reported eating at least five servings
8 of fruit and vegetables a day (in line with government recommendations) (**Table 3**).

9

10 **TABLE 3: Healthy Lifestyle Indicators (n = 508)**

	Number	Percentage
Non-Smoker	452	89%
Alcohol consumption 0–5 drinks pw.	429	84.4%
Consider weight about right	376	74.4%
> 3 hours physical activity pw.	233	45.9%
> 5 portions of fruit and vegetables pd.	200	39.4%

11

12 **Demographic comparisons.**

13 **Alcohol**

14 Proportionately more students reported abstaining from alcohol in the week prior to the study if they were living at
15 home with their parents (compared with private accommodation), and if they were Asian students (compared with
16 White students; Table 4), **which is partly explained by 34.7%** of Asian students living at home, compared with
17 **10.7%** of White students. Although a higher proportion of White students had drunk alcohol in the previous week, from
18 this higher baseline a higher proportion reported seeking to reduce their alcohol consumption, as did a higher
19 proportion of male students, albeit to a less statistically significant extent (**Table 4**).

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1 **TABLE 4 – Alcohol consumption**

Ethnicity	Asian or Asian British	White (British, Irish or other)	Fischer Exact Test
No alcohol in the previous week	95/144 66%	79/273 28.9%	p<.01
Cutting down on alcohol	11/122 9%	54/237 22.8%	p<.01
Residence in term time	Living at Home	In Private Accommodation	
No alcohol in the previous week	72/104 69.2%	85/261 32.6%	p<.01
Gender	Female	Male	
Cutting down on alcohol	45/324 13.9%	25/96 26%	P<.05

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3 **Physical Activity**

4 A higher proportion of students living at home failed to achieve the government target of exercising for at least 150
5 minutes per week, compared with their counterparts living in private accommodation (Table 5).

6 Brisk walking (n=229), going to the gym (n=166) and running/jogging (n=164) were the most commonly reported types
7 of physical activity (Table 5).

8

9 **TABLE 5 – Physical Activity**

Physical activity – term time residence	Living at home	In private accommodation	Fischer Exact Test
< 3 hours/wk.	75/103 72.8%	121/261 46.4%	P<.05
Physical Activity - Gender	Female	Male	Fischer Exact Test
Dancing in last 7 days	60/376 16%	5/111 4.5%	p<.01
Cycling in last 7 days	54/376 14.4%	32/111 28.8%	p <.01

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12 **Diet and weight**

13 A statistically higher proportion of 18-21year olds were trying to avoid fizzy/sugary drinks compared with older
14 students. Conversely, a higher proportion of students aged 22–25 were trying to avoid dairy products Proportionately
15 more female students were seeking to avoid red/processed meat/animal fat and female eating habits were more
16 frequently affected by concerns about animal welfare compared with males. **Based on reported height and weight,**
17 **72.4% were a healthy weight, with 12.8% underweight and 14.8% overweight (n = 392). 82.7% correctly**

1 assessed whether they were underweight, a healthy weight or overweight, with 6.6% under-estimating and
 2 10.7% overestimating.

4 **TABLE 6 – Types of food students sought to avoid and the reasons for this**

Food - Gender	Females	Males	Fischer Exact Test
Red meat/ processed meat/animal fat	134/370 36.2%	17/103 16.5%	p<.01
Animal welfare concerns	91/372 24.5%	12/104 11.5%	p <.05
Food - Age	18 - 21	22 - 25	Fischer Exact Test
Fizzy/sugary drinks	152/223 68.2%	42/142 29.6%	p<.01
Dairy products	35/223 15.7%	89/157 56.7%	p<.01
Food – term time residence	Home	Halls of Residence	Fischer Exact Test
Cost as a reason for avoiding some foods	8/94 8.5%	36/105 34.3%	p<.01

7 There were no statistically significant demographic differences other than those noted above. For the most common
 8 areas of behaviour change (exercising, eating healthily and losing weight) there were no statistically significant
 9 differences by age, gender or ethnic origin. For example, the proportion of students who had tried to exercise more
 10 was: 78.4% females *versus* 79.2% males; 77.2% Asian, 84.4% White and 64.5% other ethnic origin; 78.7% aged 18-
 11 21, 77.6% aged 22-25 and 72.6% aged over 25. This pattern was also true for healthy lifestyle indicators such as not
 12 smoking, the amount of physical activity, consumption of fruit and vegetables and action to reduce the consumption of
 13 takeaways and fast foods.

15 **Health behaviour change - the role of universities and student unions**

16 Only five of the students who had tried to change their behaviour attributed this to information, guidance, or support
 17 provided by their university or SU. **When asked what their university and student union could do to help support
 18 their health and wellbeing, the three most common themes based directly on student responses were related
 19 to physical activity (getting active at the gym, in sport or through classes), to healthier food (options, cost
 20 and skills) and to health promotion (events, campaigns and education to improve student health and
 21 wellness)** (n=122, 85 and 50 respectively). Students who referred to physical activity wanted more affordable, better
 22 facilities that offered more classes and social sport. Those who referred to healthy food requested more options
 23 offered at affordable prices, with cooking classes provided. Students who mentioned health promotion hoped to see

more wellbeing initiatives and health campaigns that encourage healthy lifestyle changes taking place, along with evening sessions.

DISCUSSION

Health behaviour change

Previous research into UK university students has tended to focus on unhealthy behaviours.²⁻⁸ For example, a [study of 410 students in 2008² reported 70% did not meet recommended physical activity levels, while a systematic review published in 2014 reported rising levels of alcohol consumption.⁷](#) Compared with [previous studies](#), including a large-scale study at Manchester Metropolitan University (MMU)³ in 2014 [and a study of health behaviours at seven UK universities in 2007-2008,⁸](#) the current students appear to be following healthier lifestyles. Only 11% reported that they smoke, compared with 26.6% at MMU [and 27.5% in the seven universities study](#); and 39.4% reporting eating 5 or more servings of fruit and vegetables, compared with 10% [and 14.9%](#). 41.6% reported drinking no alcohol in the week prior to the study, whereas [68% reporting binge drinking in the seven universities study](#).

There are several possible reasons for the differences between our study and previous work. Our respondents were self-selecting; therefore, may have been more health conscious than average student. However, due to similar online study design, this could be true of previous studies as well.²¹ Religion and ethnic diversity may also be factors. Asian students in this study consumed significantly lower levels of alcohol (Table 2) and King's College London is nationally known to be ethnically diverse.²²

Another possible reason for respondents in the current study appearing to follow healthier lifestyles, which has potential public health implications, is the emergence of Generation Z. These are students born in the early to mid-1990's, whose formative early teenage years came after the financial crash of 2007. They have seen tuition fees rise to over £9000 a year and are part of 'Generation Rent', seeing young people often priced out of the housing market, with the rise of the 'gig economy' reducing job security. This may explain why Generation Z are described as health conscious, preferring fresh ingredients over processed food²³ and labelled by market research companies as 'realistic and sober...mature beyond its years....conscientious and hardworking.'²⁴ Additionally, drinking, smoking and teenage pregnancy are at their lowest levels in decades.²⁵ Whilst most of these descriptions are from American sources, [data from the Office for National Statistics \(ONS\) and National Health Service \(NHS\) Digital provides strong corroboration in the UK](#). The ONS reports that young people in the UK (aged 16–24) are less likely to drink than any other age group²⁶ and that smoking rates have decreased most among 18–24 year olds.²⁷ Also in the UK, NHS Digital

reports that in 2014, 52% of 15 year olds (2017's 18 year olds) reported they consumed five or more portions of fruit and vegetables a day, compared with 26% of adults and that those aged 16–24 were the age group least likely to be physically inactive.²⁸ There has also been anecdotal evidence of changing health behaviour among students reported in the UK media.²⁹⁻³¹ If this hypothesis is correct it strengthens the case for the influence of social and economic factors on behaviour change.¹² **The current socio-economic situation presents a range of challenges for young people, (which may, in part, explain a significantly higher reported incidence of university drop-out due to mental illness).**³⁴ **However**, one potentially positive side effect may be increased health consciousness and **physically** healthier lifestyles. This, in turn, provide opportunities for universities and SUs to build on to create Healthy Universities (as discussed in more detail below). This hypothesis also suggests a more nuanced interpretation of the importance of a settings approach to public health, in line with Social Cognitive Theory³³ which sees human behaviour as caused by an interplay of personal, behavioural and environmental influences, assuming we extend environmental influences beyond the immediate setting. No individual setting operates in a vacuum. Each is a part of, and potentially influenced by, a wider social and economic environment. From a Healthy Universities perspective, being attuned to that wider social and economic environment and its potential influence on those living and studying within the university setting may help increase the prospects for positive health behaviour.

Health Behaviour Change – public health implications

The high proportion of students reporting they have tried to make health behaviour changes presents an opportunity to support students to engage in healthier behaviour. Whilst success rates varied, most students reported a degree of success. This suggests student health behaviour is not static (or necessarily even a decline, freed from the constraints of family and home) but an evolving process, open to positive influence. Previous research has suggested a significant gap between what people know and the extent to which they act on that knowledge in their daily lives.³⁴ However, the student respondents in the current study appear to have narrowed the gap between knowledge and action. A proactive desire to be healthier, fitter or feel better was the primary motivation for those seeking to make a change. The results, **when asked what health behaviour changes they had made, imply (as Table 2a illustrates)** both an understanding of what behaviours are likely to be good for health and a positive willingness to act on this knowledge to become healthier. From a public health perspective, this is a positive foundation from which to build. **There may not be such clarity regarding mental health, suggesting the value of developing mental health indicators which are clear and easy to measure, to assist health education and health policy.**

Interestingly only 1% were motivated to make changes as a result of information, guidance and support provided by their university or SU. This suggests scope for universities to do more to encourage student health. It would also be in

line with the settings approach to improve health more specifically applied to higher education in the Okanagan Charter for Health Promoting Universities and Colleges.¹⁵ Its application to higher education in the UK is clearly explained in the MMU study ‘...with more than 2.3 million students and 370,000 staff, the United Kingdom universities are settings that could adopt a whole system perspective, aiming to make places within which people learn, live, work and play supportive to health and wellbeing; that is a Healthy University’.³ The Healthy Universities Network³⁵ provides a potential catalyst for action, although the current study suggests that what universities and SUs are doing is not yet being recognised as significant by students themselves. Students in this study had a range of suggestions as to what universities and SUs could do to help support their health and wellbeing. One positive step might therefore be for universities and SUs to actively seek and, where appropriate, act on suggestions from students (i.e. to adopt a community-centred approach and see the current cohort of students as a resource and a potential partner in the move to create Healthy Universities). It is reasonable to assume that healthier students will tend to be more academically successful³⁶ suggesting it is in universities’ own self-interest to take a pro-active approach.

A higher proportion of 18–21 year olds reported seeking to avoid sugary drinks, compared with older students. Further research is required to confirm these findings and to consider possible reasons. One possible hypothesis is the impact of the high profile, multi-dimensional campaign to reduce levels of sugar consumption in the UK, in particular sugary drinks. This campaign involved a credible celebrity chef³⁷ as well as health experts, and a strong social media element alongside extensive coverage in more traditional media, including an online petition to Parliament³⁸ – a possibly unprecedented combination. The youngest students in our survey (aged 18–21), potentially influenced by such campaigns at a more formative age, were those most likely to be trying to avoid sugary drinks. As the current study did not ask whether students recalled or considered whether they were influenced by the campaign this may require further research. Given the potential implications for the way public health messages are communicated, this may merit consideration. If confirmed it would be a further example of the influence wider social factors may have on behaviour change.

The study’s findings also suggest scope for more targeted approaches to health behaviour change, recognising that non-health factors, such as concerns over animal welfare, may influence the food choices of some students; that high profile health campaigns and media coverage may also influence food choices (currently regarding the health risks of sugary drinks); and that identifiable types of student may pursue healthy lifestyles in some respects but need encouragement to extend the range of healthy behaviour (as with students living at home with their parents, who were less likely to consume alcohol but also less likely to exercise).

1 **STRENGTHS AND LIMITATIONS OF THE STUDY**

2 The current study is the first, to our knowledge, to examine positive student health behaviour change in the UK. This
3 advances the current literature exploring student health behaviour and provides evidence of a possibly more health
4 conscious cohort of students now entering universities. These findings may inform future research and university
5 health messaging and programming, although the study limitations should be recognized. **The current study**
6 **maintained a focus on physical rather than mental health indicators. However, there is a recognized issue of**
7 **mental health difficulties amongst university aged students.³⁹ Mental health may impact physical health and**
8 **this area requires further exploration.**

9
10 **The relatively small sample size**, insufficient response from male students, geographical limitations and **a reliance**
11 **on self-reporting** may have resulted in motivations for behaviour change not being accurately recognised by students
12 and **may raise questions of reliability. However, given the scale of between-group differences compared with**
13 **previous studies, and the correlation with recent national data from the ONS and NHS Digital it is reasonable**
14 **to assume that changes in reported behaviour were representative. Nevertheless, future research should**
15 **build on the data gathered in the current study to address the limitations and inform the development of**
16 **future health promotion programmes in the student population, with particular focus in response to the**
17 **increasing concerns regarding student mental health, including appropriate mental health indicators to**
18 **facilitate this; and to seek to avoid male responses being under-represented, given a tendency for male**
19 **response rates to be lower⁴⁰⁻⁴¹ at a time when a third more females are now entering university compared with**
20 **males.⁴²**

21
22 **CONCLUSIONS**

23 This study suggests a novel perspective on student health, in particular that current university students (in particular
24 from Generation Z, studying in London) on average may be pursuing **physically** healthier lifestyles than their
25 predecessors and that the numbers seeking to change their behaviour to become healthier after starting university is
26 already encouragingly high (at over 80% of those responding). This suggests a need to revisit the traditional
27 stereotypes of a hedonistic student life freed from the constraints of family and home. Possible public health
28 implications, which might benefit from further research, include the potential value of: 1. Universities and SUs building
29 on the greater health consciousness among many current students, to begin to make the concept of Healthy
30 Universities a reality; 2. High profile public health campaigns, combining both established and more innovative
31 approaches, to optimise impact (given the possible impact on sugary drink consumption among 18–21 year olds in
32 this study); 3. Targeted approaches (for instance recognising that students living at home are less likely to drink

1 alcohol – but may need encouragement and support to take more exercise; and that attitudes to food, among female
2 students in particular, may be influenced by wider concerns); 4. Follow up research that considers the implications of
3 this potentially evolving student context for a settings approach to public health, **covering both physical and mental**
4 **health.**

5 **(3891 words)**

7 **FUNDING**

8 This research received no specific grant from any funding agency in the public, commercial or not for profit sectors.

10 **CONFLICT OF INTEREST**

11 The authors have no conflict of interest.

13 **ACKNOWLEDGEMENTS**

14 We would like to thank all the students who participated in the study.

16 **ETHICAL APPROVAL**

17 This study was approved by King’s College London’s ethics committee.

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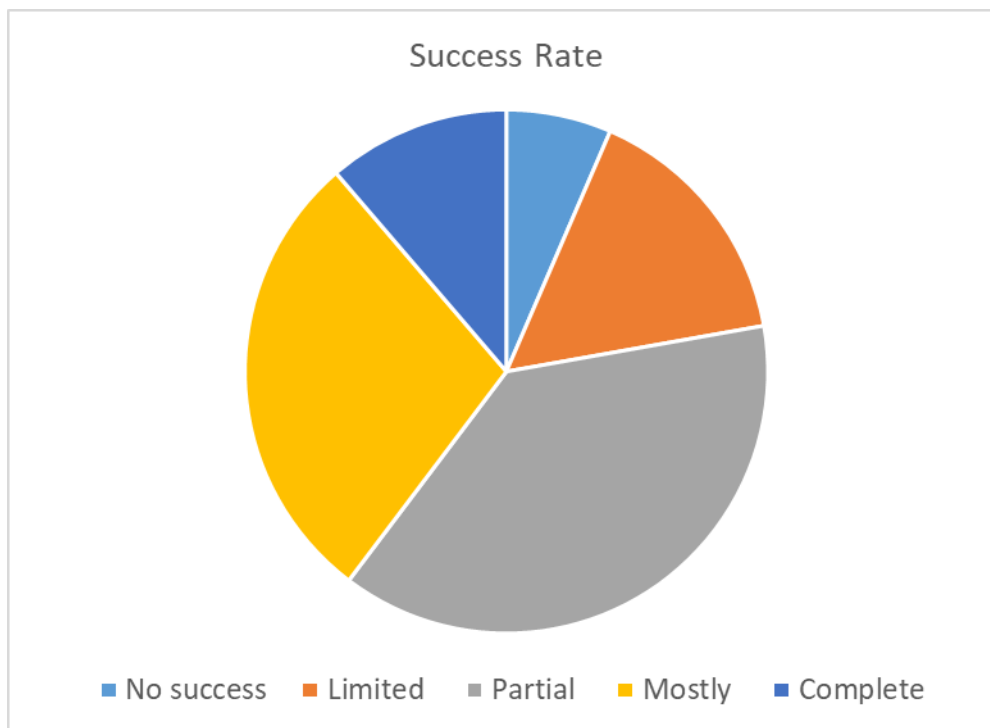
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1 **Figure 2b continued** (to accompany the Word document Table 2 in the text)



2 **Student Health Behaviour Change Survey – Multi-Centre Study**
3 **Online Survey**

6 This survey is designed to explore the health behaviours of students and whether these change while they are at
7 university. It is part of a multi-centre university study and will take about 5 minutes to complete.

9 Please be as honest as possible. All the replies we receive will be anonymous and confidential, and will be used for
10 research purposes only. However, if there are any questions that you would prefer not to answer, please just move on
11 to the next question you are comfortable answering.

14 **SECTION A – HEALTH BEHAVIOUR CHANGE**

15 **Q1: Since you started university have you changed something you normally do to try to become healthier?**
16 **(Like stopping something, doing less/more of something or starting something) Please tick one box**

Yes	
No	

17 *If the student answers yes, the questionnaire should proceed to questions 2 -5.*
18 *If the student answers no, the questionnaire should proceed to question 6*

20 **If yes**

21 **Q2. What did you try to change? Please tick all relevant boxes**

To exercise more	
To eat healthier food/have a healthier diet	
To stop smoking	
To cut down on alcohol consumption	
To lose weight	
Other – please describe	

23 **Q3. Why did you try to change? Please tick all relevant boxes**

To be healthier, fitter or feel better	
Because I know it is good for me	
To lose weight	
A health problem experienced by me or someone close to me	
A medical check or advice	
Encouraged to do this by someone else (e.g. parents, partner, friends, fellow students or someone at the university)	
I was feeling tired, unwell or lethargic	
To prepare for an event e.g. a charity run	

To take part in or get better at sport or use the gym	
To live longer/enjoy long term health benefits	
Having children/parental responsibility	
Because of information/guidance/support provided by my university and/or student union	
Other – please describe	

Q4. How successful were you at making the change? Please rate how successful you've been at making the change.

1 _____ 2 _____ 3 _____ 4 _____ 5 _____
 Not at all successful _____ Completely Successful

Q5. Based on this rating, what do you think influenced your success? Please comment here

Q6. Is there anything your university and/or student union could do to help support your health and wellbeing? Please comment here

Participant will be taken to Section B after completing this section

If the student answers 'yes' to question 1, they will not answer question 2 below; they will skip to Section B.

If the student answers 'no' to question 1, the questionnaire will proceed to the below question

Q2. What would you say is the main thing that has stopped you from making a change to try to become healthier?

I already lead a healthy lifestyle	
I don't care enough about my health	
Too many other things going on in my life – I don't have enough time	
Laziness	
Lack of will power	
Other – please describe	

Q3. Is there anything your university and/or student union could do to help support your health and wellbeing? Please comment here

SECTION B – HEALTH BEHAVIOUR OVERALL

Smoking

Q1. Do you smoke? Please tick one box

Yes	
No	

Eating

Q2. How many servings of fruit and vegetables do you eat in a typical day? Please tick one box

Five or more	
Less than five	
None	

Q3. Are there any foods you try to avoid? If so, what are they? Please tick all relevant boxes

Takeaways and Fast Food (e.g. from burger chains)	
Sugary food (e.g. sweets, cakes, puddings, pastries and biscuits)	
Fizzy drinks/Sugary drinks	
Red meat/Processed meat/animal fat	
Dairy products (milk, cream, cheese, butter)	
Other – please describe	

Q4. If there are some foods you try to avoid why do you try to avoid them? Please tick all relevant boxes

Don't like the taste	
Not good for my health	
Food allergy or intolerance	
Animal welfare	
Environmental concerns	
Cost	
Other – please describe	

Q5. How do you describe yourself? Please tick one box

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Overweight	
About right	
Underweight	

Alcohol

Q6. Over the last week how many alcoholic drinks have you had (like beer, wine, cocktails or spirits)? Please tick one box

0	
1 - 5	
6 - 10	
11 - 15	
More than 15	

Physical activity

Q7. Which of the following did you do over the last seven days? Please tick all relevant boxes

Aerobics	
Cycling	
Dancing	
Going to the gym	
Playing a sport (e.g. football, hockey)	
Running/Jogging	
Swimming	
Brisk Walking	
Zumba	
Other –please describe	
None	

Q8. How much time did you spend on these different types of physical activity over the last seven days as a whole? Please tick one box

Less than three hours/180 minutes	
Three - four hours/180 – 240 minutes	
More than four hours/240 minutes	

Section C -Demographics

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Q1. How old are you?

Under 18	18	19	20	21	22	23	24	25	Over 25
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Q2. How do you see your gender?

Male	
Female	
Non-binary/Gender-queer	
Trans female	
Trans male	
In another way	
Prefer not to say	

Q3. To which of the following ethnic groups do you feel you belong?

Asian or Asian British	
Black or Black British	
Mixed or Multiple ethnic groups	
White: British or Irish	
White: Other	
Any other ethnic group	
Prefer not to say	

Q4. What is your main field of study? *Please comment here*

Q5. During term time, where do you live?

Exchange family	
Inter-collegiate Halls of Residence	
University Halls of Residence	
Home with parent(s)/guardian(s)	
Private accommodation (shared or single)	
Own Home (owned)	
Other –please describe	

Q6. Which other members of your immediate family have been to university? *Please tick all relevant boxes*

Father	
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Mother	
Brother(s)	
Sister(s)	

1
2 **Q7. How tall are you (in feet/inches)?**

3 **Q8. How much do you weigh (in kilos)?**

4 **Q9. In general, how would you rate your health? *Please tick one box***

Excellent	
Very good	
Good	
Fair	
Poor	

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